WHAT IS CLAIMED IS:

1. An isolated nucleic acid comprising a polynucleotide sequence, or complement thereof, encoding a polypeptide comprising

an amino acid sequence at least 40% identitical to DMT Domain A; or

an amino acid sequence at least 40% identitical to DMT Domain B; or

an amino acid sequence at least 40% identitical to DMT Domain C; or

a combination thereof.

2. The isolated nucleic acid of claim 1, wherein the polypeptide is at least 70% identical to SEQ ID NO:2.

3. The isolated nucleic acid of claim 1, wherein the polypeptide is SEQ ID NO:2.

4. The nucleic acid of claim 1, wherein the polypeptide comprises an amino acid sequence identical to a domain of claim 1.

5. The nucleic acid of claim 1, wherein the polypeptide is capable of exhibiting at least one of the following biological activities:

(a) glycosylase activity;

(b) demethylation of polynucleotides;

(c) DNA repair;

(d) wherein expression of the polypeptide in a plant modulates organ identity;

(e) wherein expression of the polypeptide in a plant modulates organ number;

(f) wherein expression of the polypeptide in a plant modulate meristem stem and/or activity;

(g) wherein enhanced expression of the polypeptide in a plant results in a delay in flowering time;

(h) wherein introduction of the polypeptide into a cell results in modulation of methylation of chromosomal DNA in the cell;

(i) wherein reduction of expression of the polypeptide in a plant results in modulation of endosperm development;

(j) wherein expression of the polypeptide in an *Arabidopsis* leaf results in modulation of expression of the *MEDEA* gene.

6. The nucleic acid of claim 5, wherein the polypeptide comprises either a

(i) basic region;

(ii) nuclear localization signal;

(iii) leucine zipper;

(iv) helix-hairpin-helix structure;

(v) glycine-proline rich loop with a terminal aspartic acid or

(vi) helix that is capable of binding DNA.

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7. The isolated nucleic acid of claim 1, wherein the nucleic acid further comprises a promoter operably linked to the polynucleotide.

8. The isolated nucleic acid of claim 7, wherein the promoter is a constitutive promoter.

9. The isolated nucleic acid of claim 7, wherein the promoter is from a DMT gene.

10. The isolated nucleic acid of claim 9, wherein the promoter comprises a polynucleotide at least 70% identical to a sequence selected from the group consisting of SEQ ID NO:3, SEQ ID NO4 and SEQ ID NO:6.

11. The isolated nucleic acid of claim 10, wherein the promoter is selected from the group consistiing of SEQ ID NO:3, SEQ ID NO4 and SEQ ID NO:6.

12. The isolated nucleic acid of claim 7, wherein the polynucleotide sequence is linked to the promoter in an antisense orientation.

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13. An expression cassette comprising a promoter operably linked to a heterologous polynucleotide sequence, or a complement thereof, encoding the polypeptide of claim 1.

14. The expression cassette of claim 13, wherein the polynucleotide sequence is linked to the promoter in an antisense orientation.

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15. A host cell comprising an exogenous polynucleotide sequence comprising a polynucleotide sequence, or complement thereof, encoding the polypeptide of claim 1.

16. The host cell of claim 15, wherein the nucleic acid further comprises a promoter operably linked to the polynucleotide sequence.

17. The host cell of claim 16, wherein the host cell is a plant cell.

18. A method of modulating transcription, the method comprising,

(a) introducing into a host cell an expression cassette of claim 13; and

(b) selecting a host cell with modulated transcription.

19. The method of claim 18, wherein the expression cassette is introduced by *Agrobacterium*.

20. The method of claim 18, wherein the expression cassette is introduced by a sexual cross.

21. The method of claim 18, wherein the polypeptide is capable of exhibiting at least one of the following biological activities:

(a) wherein enhanced expression of the polypeptide in a plant results in a delay in flowering time;

(b) wherein introduction of the polypeptide into a cell results in modulation of methylation of chromosomal DNA in the cell;

(c) wherein reduction of expression of the polypeptide in a plant results in enhanced endosperm development;

(d) wherein expression of the polypeptide in an *Arabidopsis* leaf results in expression of the *MEDEA* gene.

22. The method of claim 18, wherein the promoter is operably linked to the heterologous polynucleotide in the antisense orientation.

23. A method of detecting a nucleic acid in a sample, comprising

(a) providing an isolated nucleic acid molecule according to claim 1,

(b) contacting the isolated nucleic acid molecule with a sample under conditions which permit a comparison of the sequence of the isolated nucleic acid molecule with the sequence of DNA in the sample; and

(c) analyzing the result of the comparison.

24. A transgenic plant cell or transgenic plant comprising a polynucleotide sequence, or complement thereof, encoding a polypeptide of claim 1.

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25. A plant which has been regenerated from a plant cell according to 24.

26. The plant of claim 25, wherein the polypeptide is capable of exhibiting at least one of the following biological activities:

(a) wherein enhanced expression of the polypeptide in a plant results in a delay in flowering time;

(b) wherein introduction of the polypeptide into a cell results in modulation of methylation of chromosomal DNA in the cell;

(c) wherein reduction of expression of the polypeptide in a plant results in enhanced endosperm development;

(d) wherein expression of the polypeptide in an *Arabidopsis* leaf results in expression of the *MEDEA* gene.

27. An expression cassette for the expression of a heterologous polynucleotide in a plant cell, wherein

the expression cassette comprises a promoter at least 70% identical to a sequence selected from the group consisting of SEQ ID NO:3, SEQ ID NO:4 and SEQ ID NO:6, and

the promoter is operably linked to a heterologous polynucleotide.

28. The expression cassette of claim 27, wherein the promoter is selected from the group consistiing of SEQ ID NO:3, SEQ ID NO4 and SEQ ID NO:6.

29. The expression cassette of claim 27, wherein the promoter specifically directs expression of the heterologous polynucleotide in a female gametophyte when the expression cassette is introduced into a plant.